

EDITORIAL

Communication between radiologists and nuclear medicine physicians

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Radiologists and nuclear medicine physicians are medical imaging specialists involved in visualization of organs of the human body, nevertheless they practice disciplines that are sufficiently different and distinct for them to only rarely have a real opportunity to communicate or exchange information.

In the past, there was essentially an 'entente cordiale' in which each discipline performed its own imaging separately: anatomical and morphological for radiologists and metabolic and functional for nuclear medicine physicians. These two disciplines worked side by side and were complementary, but never felt a real need for collaboration as their diagnostic objectives were different; although both guided by the same concern to perform optimal imaging, each discipline working independently.

At the end of the 1990s, budget constraints in French hospitals led to the creation of Imaging Departments in order to group expensive equipment in the same department whenever possible. Nuclear medicine has continued to grow and develop, often fully integrated within the Imaging Department, but continuing to independently manage its own specificities. This integration process suddenly accelerated with the arrival of new hybrid positron emission tomography (PET)-computed tomography (CT) machines simultaneously combining the two modalities each of which represented a real revolution in the well-defined context of hospital medical imaging.

The impact of this revolution, which is still exerting its effects today, was even more dramatic in that it was twofold. First, nuclear medicine had to adapt to a new type of tomography gamma-camera possessing detection capacities relating to particular technical specificities, and the use of a new radioisotope,

fluorine-18, very different from technetium-99m which had been used for several decades. Second and more important, nuclear medicine physicians had to look at CT scans without necessarily interpreting them, while radiologists had to deal with conventional nuclear medicine imaging derived from positron emission tomography.

The anatomical correlation achieved by image fusion, the strong point of PET-CT imaging, had to be acquired simultaneously and harmoniously by radiologists and nuclear medicine physicians, who each provided their own contribution.

Even today, although these machines are increasingly available and their use in oncology has become more clearly defined, dual interpretation by radiologists and nuclear medicine physicians still raises organizational difficulties, especially when contrast-enhanced CT images are used for PET image fusion^[1]. This results in essential upstream consequences affecting the technique of each imaging modality, both in terms of scanning parameter selection and training of radiology and nuclear medicine personnel authorised to perform these examinations.

At the end of the chain, interpretation of purely CT images by a specialized radiologist and conventional nuclear medicine images by a nuclear medicine physician is essential, in view of the possibility of artefacts, false-positives and false-negatives, as imaging of glucose metabolism is based on comparison of the morphological and pathological features observed on CT.

A multidisciplinary approach is almost mandatory in order to provide medically irreproachable results legally signed by skilled professionals. It is the role of scientific societies and radiology and nuclear medicine associations

to propose guidelines integrating all of these criteria by organizing joint working parties, as is already the case in the United States^[2].

We are therefore participating in a revolution in the field of medical imaging that can be considered to be a cultural revolution, in which each party must redefine its position and its role in patient management, in hospital rounds and in the priority of diagnostic examinations^[3]. These new activities promise a fascinating future, in which the diagnostic capacities in oncology will be even further improved.

References

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